CLAIMS

We claim:

1. In a system comprising a rolling machine used to form work pieces, a device for holding at least one roller in the rolling machine comprising:

at least one roller that can rotate about a rotational axis;

at least two holding arrangements arranged on opposite faces of the at least one roller viewed in the direction of the rotational axis;

at least two coupling arrangements that can be can be configured in a coupled mode and an uncoupled mode, wherein the at least one roller can be detached from the two holding arrangements when the at least two coupling arrangements are in uncoupled mode, and wherein the at least two coupling arrangements comprise:

a first coupling part including at least a first groove and a second groove that does not run parallel to the first groove; and

a second coupling part including at least a first coupling element that projects further outward from the second coupling part than a second coupling element, such that when the at least two coupling arrangements are in coupled mode:

the first coupling element of second coupling part extends into the first groove of the first coupling part; and

the second coupling element of the second coupling part positively engages the second groove of the first coupling part.

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2. The system as recited in claim 1, wherein the first groove in the first coupling part is embedded more dèeply than the second groove of the first coupling part, such that the first coupling element does not hit a groove base of the first groove when the second coupling element positively engages the second groove.

3. The system as recited in claim 1, wherein the first coupling element of the second coupling part positively engages the first groove of the first coupling part relative to its side walls when each of the at least two holding arrangements coupled.

4. The system as recited in claim 1, wherein the first groove and the second groove comprise a corresponding first and second groove base, and wherein the first and second coupling elements can only abut the corresponding first and second groove base when the at least two holding arrangements are coupled.

5. The system as recited in claim 1, wherein the first groove and the second groove of the first coupling parts of the at least two holding arrangements are open at an end.

6. The system as recited in claim 1, wherein the first groove is positioned orthogonal to the second groove of each first coupling part of the at least two holding arrangements.

7. The system as recited in claim 1, wherein the first and second grooves of the first coupling part can be adjusted essentially parallel to each other.

8. The system as recited in claim 1, further comprising at least one positioning device for setting at least one of the two holding arrangements along the rotational axis in one

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of a feeding movement toward each other and a removal movement away from each other.

9. The system as recited in claim 1, wherein, in order to mount the at least one roller between the two holding arrangements, the at least one roller is brought into a position between the two holding arrangements in a direction of introduction that is parallel to the first groove when at least two holding arrangements are in uncoupled mode, wherein the accompanying holding arrangements can be switched to coupled mode by feeding at least one of the two holding arrangements to the roller.

10. The system as recited in claim 1, wherein, the at least one roller can be dissembled from the at least two holding arrangements, by performing a method of:

switching the two holding arrangements from an uncoupled mode by moving at least one of the two holding arrangements away from the roller; and

bringing the at least one roller into a position outside the two holding arrangements in a withdrawal direction that runs parallel to the first grooves while guiding the first coupling elements out of the first grooves of the at least two holding arrangements.

11. The system as recited in claim 1, wherein stop surfaces that are located on front sides of the at least two holding arrangements abut each other when the at least two holding arrangements are in coupled mode.

12. The system as recited in claim 1, further comprising positioning means for positioning the at least one roller relative to the at least two holding arrangements in

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such a way that the two holding arrangements can be switched from the uncoupled to the coupled mode.

13. The system as recited in claim 12, wherein the positioning means comprise stop means that stop the movement of the roller in the direction of introduction in a position such that at least two holding arrangements can be fed to the roller to switch the coupling arrangement to its coupled mode by introducing the second coupling element of the second coupling part into the second groove of the first coupling part.

14. The system as recited in claim 1, further comprising at least a second roller; and at least two holding arrangements and two coupling parts for each of the at least one roller and the at least a second roller.

15. The system as recited in claim 14, wherein the at least two holding arrangements and at least first and second rollers are situated next to each other in a vertical position.

16. The system as recited in claim 15, wherein at the least first and second rollers are mounted sequentially, such that the at least a first roller is assembled by guiding the first roller between the at least two holding arrangements of the at least a second roller that is mounted subsequently.

17. The system as recited in claim 16, wherein positioning means are provided in such a way that the at least one roller is guided between the at least two holding arrangements of the at least a second roller, and such that the at least one roller is positioned in the desired location by the positioning means only in its desired setting between the corresponding holding arrangements of at least two holding arrangements.

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18. The system as recited in claim 17, wherein any of the positioning means and stop means of the at least one roller are arranged at a lower end of the at least two holding arrangements, and on a front side of the at least one roller; and wherein the positioning means are arranged at an upper end of the a face of the at least two holding arrangements for holding the at least a second roller.

19. The system as recited in claim 17, wherein the at least one and second rollers are non-exchangeably incorporated between the corresponding at least two holding arrangements when using the positioning means.

20. The system as recited in claim 12, wherein the positioning means are configured to allow a feeding motion of the at least two holding arrangements relative to the at least one roller.

21. The system as recited in claim 12, wherein the positioning means comprise positioning elements that interlock at the back surface of the at least one roller.

22. The system as recited in claim 1, wherein the first groove of the first coupling parts are open at least at one of their ends.

23. The system as recited in claim 22, wherein the first groove expand outwardly at least at one of their open ends, and wherein the first groove forms guide surfaces for the first coupling element to be introduced.

24. The system as recited in claim 23, wherein the first coupling element narrows at least at one of its ends that correspondingly fits into an outwardly expanded end of the first groove.

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25. The system as recited in claim 1, wherein one or more of the first and second grooves of the first coupling parts are continuous in design.

26. The system as recited in claim 25, wherein the second groove of the first coupling parts is continuous in design.

27. The system as recited in claim 1, wherein the first groove and second groove of the first coupling part and the first coupling element and second coupling element of the second coupling part each run radially from the rotational axis.

28. The system as recited in claim 27, wherein the first groove and second groove of the first coupling part, and the first coupling element and second coupling element of the second coupling part have respective side walls that each run radially from the rotational axis.

29. The system as recited in claim 1, wherein the second coupling part comprises at least two first coupling elements and at least two second coupling elements.

30. The system as recited in claim 29, wherein at least two first coupling elements, and the at least two second coupling elements are arranged on different sides of the rotational axis.

31. The system as recited in claim 1, wherein side walls corresponding to of any the first and second groove and the corresponding first and second coupling element are substantially perpendicular.

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32. The system as recited in claim 1, wherein the first coupling part of the at least two holding arrangements is situated on the roller, and the second coupling part is situated on any of the at least two holding arrangements.

33. The system as recited in claim 1, wherein the first coupling element projects axially along the rotational axis farther than the second coupling element.

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34. A rolling machine used to form work pieces comprising:

at least two rollers that can rotate around two corresponding rotational axes, and that can be equipped with one or more tools for forming a work piece,

at least one rotational drive for rotating the one or more of the at least two rollers such that a work piece is formed when the work piece is arranged between the at least two rollers during a forming phase; and

a device for holding the at least two rollers comprising:

two holding arrangements arranged on opposite faces of the at least two rollers viewed in the direction of the rotational axis;

at least two coupling arrangements that can be can be configured in a coupled mode and an uncoupled mode, wherein the at least two rollers can be detached from the two holding arrangements when the at least two coupling arrangements are in uncoupled mode, and wherein the at least two coupling arrangements comprise:

a first coupling part including at least a first groove and a second groove that does not run parallel to the first groove; and

a second coupling part including at least a first coupling element that projects further outward from the second coupling part than a second coupling element, such that when the at least two coupling arrangements are in coupled mode:

the first coupling element of second coupling part extends into the first groove of the first coupling part; and

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the second coupling element of the second coupling part positively extends into the second groove of the first coupling part.

35. A rolling machine as recited in claim 34, further comprising bearing arrangements for each holding arrangement in which the holding arrangements are rotationally supported.

36. A rolling machine as recited in claim 34, wherein the rolling machine is configured as one of a grooved cross rolling machine and a cross wedge rolling machine.

37. A rolling machine as recited in claim 34, wherein tools on any of the at least two rollers comprise one of a wedge-shaped and triangular cross sectional profiles that increase in radial dimensions in one direction along the periphery, and slant relative to the rotational axis of the corresponding roller.

38. A rolling machine as recited in claim 34, wherein the rotational axes of the at least two rollers are oriented essentially parallel to each other.

39. A rolling machine as recited in claim 34, wherein the rotational axes of the at least two rollers are situated essentially vertically when viewed in the direction of gravitational force.

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